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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,428

10/24/2005

Girish G Parekh

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EXAMINER

JACOBSON, MICHELE LYNN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/522,428	Applicant(s) PAREKH ET AL.	
	Examiner MICHELE JACOBSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/24/05, 6/20/06, 6/29/07</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-15, and 18-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Heyenk et al. International Publication Number WO 98/47974 (hereafter referred to as Heyenk) as evidenced by Parekh et al. U.S. Patent No. 6,235,102 (hereafter referred to as Parekh).

3. Heyenk teaches a resin comprising a mixture of at least two polymers wherein at least one polymer has a glass transition temperature (T_g) greater than about 45° C. (Pg. 1, line 29-Pg. 2, line 2). The polymers are preferably polyesters with molecular weights between 2000 and 15000 and a difference in glass transition temperatures greater than 5° C. (Pg. 2, lines 5-12) Generally, the second polymer has a dry solids content between 30% and 100% and T_g less than 40°C, preferably a dry solids content of at least 50% and T_g less than 10°C. (Pg. 2, lines 22-30) The weight proportion of the polymer having a T_g higher than 45° C is at least 25% (relative to the polymers). (Pg. 3, lines 21-23) The acid numbers of the polyesters range between 0-100 mg of KOH/g of resin and the hydroxyl numbers of the polyesters range between 0-150 mg of KOH/g of resin. (Pg. 3, line 30-Pg. 4, line 2) The polymer mixture according to the invention has to be cured with a crosslinker of which amino resin crosslinkers such as

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benzoguanamine, melamine and urea-formaldehyde resins are recited. The amino resin cross linkers are recited to be present in amounts of between 5-40 wt %. (Pg. 4, lines 7-8, 26-30) Crosslinkers containing isocyanate groups are also recited to be useful. (Pg. 4, lines 11-12) The coating of the invention is recited to be useful as interior or exterior coatings for beer cans, cans for other beverages and can ends made of substrates such as aluminum. (Pg. 8, lines 23-28) Methods such as the drawn-redrawn or draw-wall ironed methods are recited for production of the cans. (Col. 4, lines 33-34) Suitable polyalcohols for preparing the polyesters are recited to include ethylene glycol, diethylene glycol, butanediol (1,4), hexanediol (1,6), neopentyl glycol, 2-methyl-1,3-propanediol, 1,3-butanediol, 1,3-propanediol, 1,2-propanediol, 2-ethyl-2-butyl-1,3-propanediol, trimethylpentanediol, hydroxypivalic neopentyl glycol ester, tricyclodecane dimethanol, cyclohexane dimethanol, bisphenol A bishydroxyethyl ether, trimethylolpropane and/or pentaerythritol.

4. Parekh teaches that bisphenol monomers (e.g. bisphenol A) and glycidyl ether monomers (e.g. BADGE) are present in can coatings that use epoxy or phenolic resins. (Col. 2, line 54-Col.3, line26)

5. Since Heyenk teaches amino resin and isocyanate resin cross linkers in addition to and as an alternative to epoxy based cross linkers, the invention of Heyenk would inherently be completely free of bisphenol and glycidyl ether monomers such as BPA, BADGE, BFDGE and NOGE according to applicants' definition. Heyenk also teaches other polyols in addition to neopentyl glycol so the limitation of the polyol used to make the polyester of claim 1 being substantially NPG free is anticipated.

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6. Since Heyenk also recites that the composition of the invention is useful for coating cans, Heyenk anticipates the can coated with a polyester resin with a molecular weight of between 2000 and 15000 comprising 10-30 wt % amino resin crosslinker, a polyester with a Tg less than 25° C completely free of BPA, BADGE, BFDGE, NOGE and NPG as claimed in claims 1-7, 10 and 15.

7. Since the polymer of Heyenk is recited to be comprised of 5-40 wt % amino resin crosslinker and no other mandatory additives the rest is comprised of 60-95 wt % polyester as claimed in claim 13. This range encompasses the range of 65-85 wt % recited in claim 14 and therefore anticipates that range.

8. The recitation of Heyenk that the polyester with Tg greater than 45° C comprising at least 25% of the polymer is within the range of 10-40 wt% of Tg greater than 50° C recited by applicant in claims 8 and 9. Although Heyenk does not specifically recite that the polyester have a Tg greater than about 50° C the range of greater than 45° C overlaps and substantially encompasses the range recited by applicant.

9. The ranges for acid and hydroxyl number recited by Heyenk encompass the ranges recited by applicant in claims 11 and 12.

10. The limitation in claim 18 that the end portion of the can be coated with the composition prior to fabrication is a product by process limitation and is not expected to produce a materially different product from a can end that was coated after fabrication. Since Heyenk specifically discloses the usefulness of the composition recited for coating can ends the limitation of claim 18 is anticipated. Heyenk also recites the

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usefulness of the composition for coating both the exterior and interior of cans so the limitations of claim 19 are anticipated as well.

11. The composition of claim 20 is anticipated by Heyenk and method recited in claims 20 are well known steps of the drawn-redrawn method of can production recited by Heyenk. It is standard practice to coat a metal substrate with polymer and allow it to cure in the drawn-redrawn method and thus the limitations of claim 21 are anticipated by Heyenk.

12. Since the composition recited by Heyenk is the same as that recited by applicant it is the examiner's opinion that it would inherently pass the same amount of current as recited by applicant in claim 22. The composition of Heyenk is recited to be useful for food contact packaging and coating can ends and since it may be synthesized in the absence of epoxy or phenolic resins is inherently substantially free of BPA and aromatic glycidyl ether compounds as recited in claims 23-25.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyenk et al. International Publication Number WO 98/47974 (hereafter referred to as Heyenk) and Parekh et al. U.S. Patent No. 6,235,102 (hereafter referred to as Parekh).

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15. Heyenk teaches what has been recited above but is silent regarding the addition of an acrylate copolymer having glycidyl groups.

16. Parekh teaches the addition of an acrylate copolymer having pendant glycidyl groups and to an acid-terminated polyester in a nonaqueous carrier in order to produce a compound that effectively inhibits corrosion of ferrous and nonferrous metal substrates such as aluminum upon curing and cross linking. (Col. 5, lines 30-32, lines 40-50) The coating composition is also free of glycidyl ether and bisphenol monomers such as BADGE and bisphenol A. (Col. 5 lines 32-37) The coating composition is recited to comprise (a) about 50% to about 90% by weight of an acrylate copolymer having pendant glycidyl groups and (b) about 10% to about 50% by weight of an acid-terminate polyester. The coating composition is prepared by simply admixing the copolymer, the polyester, and any optional ingredients, in any desired order, in the non-aqueous carrier, with sufficient agitation. (Col. 13, lines 41-45)

17. The motivation to combine the teachings of Parekh with the composition of Heyenk would have been to improve the corrosion barrier properties of the coating composition of Heyenk. The composition of Parekh inhibits the corrosion of metals by simply admixing the acrylate copolymer with pendent glycidyl groups with polyester. It follows that the addition of acrylate copolymer with pendent glycidyl groups would therefore improve the corrosion barrier properties of other polyesters.

18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have added acrylate copolymer with pendent glycidyl groups to the polyester composition of Heyenk in order to produce the invention as claimed in

claims 16 and 17. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the amount of acrylate copolymer added to the polyester composition of Heyenk as claimed in claim 16 in order to produce a polymer with beneficial corrosion resistance without diminishing the other properties of the composition.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 1794

/M. J./

/Carol Chaney/

Supervisory Patent Examiner, Art Unit 1794